

**What is claimed is:**

1. Device for measuring or evaluating the relative position of two elements with respect to each other, comprising:

- a light source for producing at least one masked light beam;
- a first two-dimensionally readable optoelectronic sensor and at least one second two-dimensionally readable optoelectronic sensor which are in a relative alignment with respect to each other such that a masked light beam incident on a surface of an optoelectronically active layer of the first optoelectronic sensor is reflected by the surface proportionally and essentially directly as a light beam onto a surface of the at least one second two-dimensionally readable optoelectronic sensor;

- electronic means for receiving output signals from the optoelectronic sensors, processing the signals, and computing the relative position of the electronic means relative to the incidences of the at least one masked light beam on the surfaces of the two-dimensionally readable optoelectronic sensors.

2. Device for measuring or evaluating the relative position of two elements with respect to each other, comprising:

- a light source for producing at least one masked light beam along a beam path;
- a first two-dimensionally readable optoelectronic sensor and a second two-dimensionally readable optoelectronic sensor;

- a partially transmitting mirror which is located in the beam path in front of the first optoelectronic sensor which can be read out two-dimensionally, the mirror and the sensors being in a relative alignment with respect to each other such that a masked light beam incident on a surface of an optoelectronically active layer of the first optoelectronic sensor is reflected by the mirror proportionally and essentially directly as a light beam onto a surface of the second two-dimensionally readable optoelectronic sensor;

- electronic means for receiving output signals from the optoelectronic sensors, processing the signals, and computing the relative position of the at least one masked light beam relative to the first two-dimensionally readable optoelectronic sensor.

3. Device for measuring or evaluating the relative position of two elements with respect to each other, comprising:

- a light source for producing at least one masked light beam;
- a first two-dimensionally readable optoelectronic sensor and at least one second two-dimensionally readable optoelectronic sensor;
- a housing in which the first and second two-dimensionally acting optoelectronic sensors are positioned relative to one another such that a masked light beam incident on first two-dimensionally readable optoelectronic sensor is proportionally reflected as a plurality of light beams in a folded beam path by a surface of an optoelectronically active layer of the first optoelectronic sensor onto the optoelectronic sensor;
- electronic means for receiving output signals from the optoelectronic sensors, processing the signals, and computing the relative position of the housing relative to the incidences of the at least one masked light beam on the surfaces of the two-dimensionally readable optoelectronic sensors.
- electronics or a computer which accepts the output signals delivered by the optoelectronic sensors, processes them, and computes the position of the housing relative to the incidences of the at least one masked light beam on the surfaces of the two-dimensionally readable optoelectronic sensors.